pH 500

Advanced pH Controller

- Accurate, reliable and simple to install
- Fully programmable microprocessor memory
- 3 month back-up power supply
- Fail-safe alarm system
- Simple wiring with removable terminal modules

HANNA® instruments
Water Analysis & Control Division

The Hanna Instruments pH 500 state-of-the-art pH controller

Recalls the calibration data to insure accuracy and compliance with procedures

Displays the various parameters and returns to normal operation mode

A 4-digit password protects the setup parameters to prevent tampering

Simple automatic calibration and temperature compensation with visual prompts

Hi-tech microprocessor puts a host of variables at your disposal to fine tune your process, save on chemicals and meet regulatory requirements

17 mm high 4 1/2 digit primary display visible from a distance

10 mm high 3 1/2 digits secondary display showing temperature or calibration data

Fixed or intermittent red, green and yellow LED's signal status from a distance

CFM key confirms calibration data and acts as the ENTER key

The Hanna line of industrial microprocessor-based controllers offers a multitude of possibilities such as single and dual set points, ON/OFF, proportional and PID control, relay outputs, user-selectable zoom, bidirectional isolated RS 232, isolated recorder outputs in mAmps and volts, differential input, control through analog output and Fail-safe Features.

Simple to use

The large, dual-level LCD shows both pH and temperature and guides operators through calibration and programming with step-by-step prompts. The choice of ON/OFF, proportional and PID control provides extra versatility and makes it possible to pick the process controller that best fits your application. Keeping track of multiple controllers in different plants is made easy. These advanced controllers can be identified with both a factory and process ID.

Fail-Safe Protection

The Fail-Safe alarms protect processes against critical errors arising from power interruptions, surges and human errors. The sophisticated yet easy-to-use system resolves these problems on two fronts: hardware and software. To eliminate blackout and line failure problems, the alarm function operates in a "Normally Closed" state and goes off if the wires are accidentally

tripped or when the power is down. This is an important feature that solves a common process problem where the alarm terminals close in abnormal situations, and no alarm is sounded with a line interruption, causing extensive damage. With our controllers, software is employed to set off the alarm in abnormal circumstances. For example, if the dosing terminals are closed too long, red LED's will also provide a visual warning signal.

Save Money with Custom Programs

The pH 500 series controller puts a host of parameters at your disposal to prevent overdosing or costly system failures. You can set your high and low set point hysteresis bands independently to fine tune dosing processes with the ON/OFF controllers. Similarly, the proportional band and time period are user-programmable to save on slow reacting chemicals which are

commonly overdosed. This advanced series of controllers also includes models featuring PID (Proportional Integrative Derivative) control. The instrument can be set to P, PI and PID to suit your application. The pH 500 offers an adjustable timer from 10 minutes to 7 days as the maximum time that the relay contacts may remain closed, an important feature in case of sudden chemical depletion, truncated intake or discharge tubing and other calamities. With these silicon guardians, users can rest assured that processes are operating efficiently and safely.

Galvanically Isolated Outputs with Zoom

Some models incorporate hardware, selectable isolated current or voltage output. These can drive auxiliary devices, chart recorders and provide remote monitoring. Users can also zoom on to any 2 points from the full-measurement scale. This line of industrial controllers includes models that provide control through analog output. Now any compatible device such as electrovalves or pumps may be driven with these advanced controllers.

Password Protection

Hanna's password protection feature keeps these controllers safe from tampering. Only users with the proper password can change the settings of these hi-tech controllers.

pH 500

Advanced pH Controller

The **pH 500** series controllers are highly sophisticated, yet easy to use. A simple-to-operate 34-level program menu offers standard features such as password protection, control relay enabling/disabling, high/low set point and adjustable hysteresis for custom control. The **pH 500** series controllers have a 4-20 mA output with a zoom function to allow better resolution on any two points between 0 and 14 pH. The fully- programmable microprocessor comes complete with a 3 month back-up power supply to maintain all set points and parameters during power interruptions. Easy 1, 2, or 3-point calibration using pH buffers 4.01, 7.01, and 10.01 ensure accuracy and reliability. An additional standard feature of the **pH 500** series is a differential circuit which eliminates ground loops from the process being monitored and significantly extends the life of the electrode.

A short list of the outstanding features of the pH 500

- Two ID numbers to identify a specific process in a particular factory
- High and low setpoints can be adjusted with 0.01 pH, 1 mV, 0.1 µS and 0.01 ppm resolution
- The hysteresis bands in ON/OFF controls can be regulated with 0.01 pH, 1 mV, 0.1 µS and 0.01 ppm resolution
- The span in proportional controls can be fine tuned in all measurement ranges
- Two independent alarm bands for high and low set points to guarantee a timely warning

- Choose the max. time, the relay contacts may remain closed before the alarm is sounded off
- Choose from six mA or VDC analog outputs and fine tune the pH/mV/EC/TDS range (e.g. 4.00-11.00)
- Setting date and time of last calibration. The data is retained for 3 months even with power off

Specifications	pH 500111	pH 500121	pH 500211	pH 500221
Range	0.00 to 14.00 pH/ -9.9 to 120°C			
Resolution	0.01 pH/0.1°C			
Accuracy (@20°C/68°F)	±0.02pH/±0.5°C			
Typical EMC Deviation	±0.2 pH/±0.5°C			
Input	High impedance 10¹² Ohm			
Calibration	1, 2, or 3 points at pH 4.01, 7.01, and 10.01			
Temp.Compensation	Automatic (with Pt100) or manual from -9.9 to 120°C			
Readout	4 1/2 digit dual-level LCD display with graphic symbols and messages			
Outputs	Analog: galvanically isolated 0 to 1 mA, 0 to 20 mA and 4 to 20 mA (max. resistive load 1 KΩ); 0 to 5VDC, 1 to 5VDC, and 0 to 10VDC (min. resistive load 1KΩ)			
Setpoint Relay	1 SPDT NO contact output 5A-250 VAC, 5A-30VDC (resistive load)		2 SPDT NO contact outputs 5A-250 VAC, 5A-30VDC (resistive load)	
Dosage	ON/OFF control	Proportional control	ON/OFF control	Proportional control
Environment	32 to 122°F (0 to 50°C); max. RH 85% non-condensing			
Power Supply	115V ±10% VAC; 60Hz			
Dimensions	1/2 DIN 5.7 x 5.7 x 6.7" (144 x 144 x 170 mm)			
Panel Cutout	5.5 x 5.5" (140 x 140 mm)			
Weight	3.5 lb. (1.6 Kg)			

Ordering Information

mV 600111 ORP controller, single set-point, On/Off control, analog output.

mV 600121 ORP controller, single set-point, proportional control, analog output.

Recommended Accessories

HI 6101405 . . . . .Amplified Flat-tip combination pH electrode with matching pin, 5 m (16.5') cable, & BNC connector
HI 1002/5 . . . . .Combination pH electrode with 16.5' (5 m) cable
HI 1003/5 . . . . .Combination pH electrode with matching pin (for grounding) with 16.5' (5 m) cable

Options available: PID control • RS232 output • Solid state relays • Analog output for pump control • 230V power supply
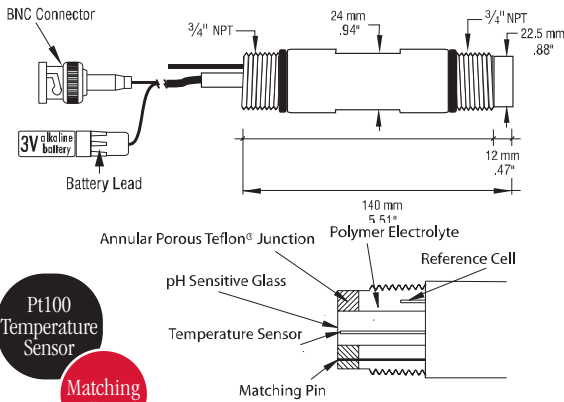
Mechanical Dimensions for pH 500

144 mm
5.7"

144 mm
5.7"

138 mm
5.4"

138 mm
5.4"

5.4"

PANEL
CUTOUT

138 mm
5.4"

138 mm
5.4"
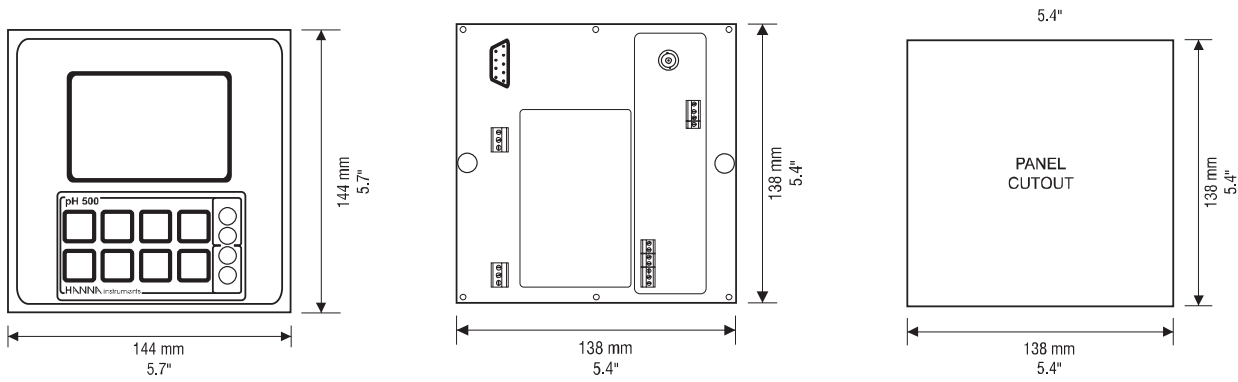
Front View

Back View

Panel Cutout

Quality electrodes for high pressure industrial applications.

Specifications for recommended pH 500 Probes

HI 6101405
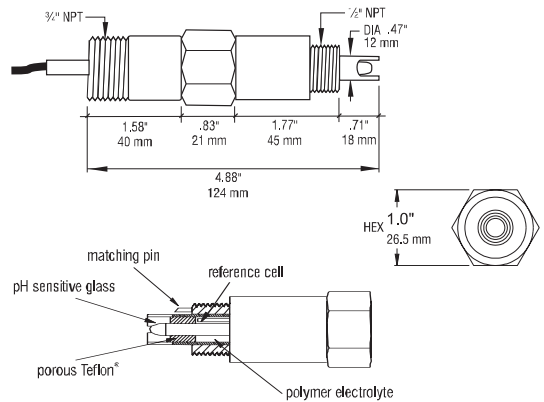**Amplified combination flat-tip pH electrode**

Specifications	HI 6101405
Reference System	
Junction	Double
Type	Teflon®
Electrolyte	Polymer
Temperature	–5 to 80°C)
Max Pressure	87 psi (6 bar)
Lead	
Connector	BNC
Cable	16.5' (5 m)

HI 1002/5 • HI 1003/5
Combination pH electrodes

Specifications	HI 1002/5 • HI 1003/5
Reference System	
Junction	Double
Type	Teflon®
Electrolyte	Polymer
Temperature	23 to 176°F (–5 to 80°C)
Max Pressure	87 psi (6 bar)
Lead	
Connector	BNC
Cable	16.5' (5 m)

HANNA instruments®
Water Analysis & Control Division

ISO 9001 Certified